



Complete Summary

GUIDELINE TITLE

Evaluation of primary care patients with chronic stable angina: guidelines from the American College of Physicians.

BIBLIOGRAPHIC SOURCE(S)

Snow V, Barry P, Fihn SD, Gibbons RJ, Owens DK, Williams SV, Weiss KB, Mottur-Pilson C. Evaluation of primary care patients with chronic stable angina: guidelines from the American College of Physicians. *Ann Intern Med* 2004 Jul 6;141(1):57-64. [36 references] [PubMed](#)

GUIDELINE STATUS

This is the current release of the guideline.

This guideline updates a previous version: Gibbons RJ, Chatterjee K, Daley J, Douglas JS, Fihn SD, Gardin JM, Grunwald MA, Levy D, Lytle BW, O'Rourke RA, Schafer WP, Williams SV, Ritchie JL, Cheitlin MD, Eagle KA, Gardner TJ, Garson A Jr, Russell RO, Ryan TJ, Smith SC Jr. ACC/AHA/ACP-ASIM guidelines for the management of patients with chronic stable angina: a report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines. *J Am Coll Cardiol* 1999 Jun;33(7):2092-197.

COMPLETE SUMMARY CONTENT

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SCOPE

DISEASE/CONDITION(S)

Chronic stable angina

GUIDELINE CATEGORY

Diagnosis
Evaluation
Risk Assessment

CLINICAL SPECIALTY

Cardiology
Family Practice
Internal Medicine

INTENDED USERS

Physicians

GUIDELINE OBJECTIVE(S)

- To update the 1999 guideline on chronic stable angina, which was published by the American College of Physicians (ACP) (then the American College of Physicians-American Society of Internal Medicine) and the American College of Cardiology/American Heart Association (ACC/AHA)
- To summarize the recommendations of the 2002 American College of Cardiology/American Heart Association (ACC/AHA) updated guideline and underscore the recommendations most likely to be important to physicians seeing patients in the primary care setting
- To provide guidance on the management of patients with chronic stable angina

TARGET POPULATION

- All persons without known coronary disease whose symptoms suggest chronic stable angina
- Patients who present with known chronic stable angina
- Asymptomatic patients with evidence suggesting coronary disease on previous testing

Note: This guideline does not apply to patients with unstable angina because they have a high to moderate short-term risk for an acute coronary event.

Unstable angina is defined as angina that presents in 1 of 3 principal ways: rest angina, severe new-onset angina, or increasing angina.

INTERVENTIONS AND PRACTICES CONSIDERED

1. Description of pain: quality, location, duration, and the presence of factors that trigger and relieve the pain
2. Assessment of cardiovascular risk factors including smoking, hyperlipidemia, diabetes mellitus, hypertension, family history of premature coronary artery disease (CAD), and postmenopausal status in women
3. Consideration of comorbid conditions that may precipitate "functional" angina
4. Resting electrocardiography (ECG)
5. Chest radiography

6. Electron-beam computed tomography (CT) (not recommended)
7. Resting echocardiography
8. Resting radionuclide angiography
9. Exercise ECG, using the Bruce protocol and Duke treadmill score
10. Exercise echocardiography
11. Exercise radionuclide angiography
12. Dipyridamole or adenosine myocardial perfusion imaging
13. Dobutamine echocardiography

MAJOR OUTCOMES CONSIDERED

- Signs and symptoms of coronary artery disease (CAD)
- Left ventricular function
- Predictive value of diagnostic tests
- Sensitivity and specificity of diagnostic tests
- Survival

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

Not stated

NUMBER OF SOURCE DOCUMENTS

Not stated

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Weighting According to a Rating Scheme (Scheme Given)

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Not applicable

METHODS USED TO ANALYZE THE EVIDENCE

Systematic Review

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Not stated

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Not stated

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Since this document is based on the American College of Cardiology/American Heart Association (ACC/AHA) guidelines, the American College of Physicians (ACP) has maintained the levels of evidence designated by the ACC/AHA in the recommendation statements:

Levels of Evidence

Level A recommendation is based on evidence from multiple randomized clinical trials with large numbers of patients.

Level B recommendation is based on evidence from a limited number of randomized trials with small numbers of patients, careful analyses of nonrandomized studies, or observational registries.

Level C recommendation is based on expert consensus.

COST ANALYSIS

A formal cost analysis was not performed and published cost analyses were not reviewed.

METHOD OF GUIDELINE VALIDATION

Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

The guidelines were approved by the American College of Physicians Board of Regents in January 2004.

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

Note from the National Guideline Clearinghouse (NGC): This guideline is an update of the 1999 guideline on chronic stable angina, which was published by the American College of Physicians (ACP) (then the American College of Physicians-American Society of Internal Medicine) and the American College of Cardiology/American Heart Association (ACC/AHA). In 2002, the ACC/AHA published an updated guideline, which the ACP recognized as a scientifically valid review of the evidence and background paper [ACC/AHA 2002 guideline update for the management of patients with chronic stable angina: a report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines (Committee to Update the 1999 Guidelines for the Management of Patients With Chronic Stable Angina)]. This ACP guideline summarizes the recommendations of the 2002 ACC/AHA updated guideline and underscores the

recommendations most likely to be important to physicians seeing patients in the primary care setting. See the companion documents field for a complete reference to the ACC/AHA guideline.

The levels of evidence (A, B, C) are defined at the end of the "Major Recommendations" field.

Estimating the Probability of Significant Coronary Artery Disease (CAD)

Recommendation 1: In patients presenting with chest pain, the probability of CAD should be estimated on the basis of patient age, sex, cardiovascular risk factors, and pain characteristics (**level of evidence: B**). Patients with intermediate or high probability should undergo risk stratification through further testing. For patients with a low probability of CAD, the decision to pursue further testing should be based on a shared discussion between the patient and clinician.

Estimating Prognosis on the Basis of Resting Left Ventricular Function

Recommendation 2: The following patients who have chronic stable angina or are asymptomatic should have left ventricular function measured by resting echocardiography or resting radionuclide angiography: patients with a history of myocardial infarction (MI), patients with pathologic Q waves, patients with symptoms or signs suggestive of heart failure, and patients with complex ventricular arrhythmias (**level of evidence for all patients: B**).

Exercise Testing for Diagnosis and Risk Stratification in Symptomatic Patients with Intermediate to High Probability of CAD

Recommendation 3: Exercise electrocardiography (ECG), using the Bruce protocol and Duke treadmill score, should be the initial test for risk stratification in patients with symptomatic chronic stable angina who are able to exercise and are not taking digoxin (**level of evidence: B**). Exercise ECG testing is also recommended after a significant change in anginal pattern (**level of evidence: C**). Exercise ECG testing is not recommended when the following confounding factors are found on resting ECG: preexcitation (Wolff–Parkinson–White) syndrome, electronically paced ventricular rhythm, more than 1 mm of ST depression at rest, and complete left bundle-branch block (**level of evidence for all factors: B**).

Risk Stratification with Stress Imaging Studies (Radionuclide Angiography and Echocardiography) in Symptomatic Patients

Recommendation 4: For patients with chronic stable angina who are able to exercise, do not have left bundle-branch block or an electronically paced ventricular rhythm, and have abnormal results on resting ECG or are using digoxin, exercise perfusion imaging or exercise echocardiography is recommended as the initial test for risk stratification (**level of evidence: B**).

Recommendation 5: For patients who are unable to exercise and do not have left bundle-branch block or an electronically paced ventricular rhythm, dipyridamole or adenosine myocardial perfusion imaging (**level of evidence: B**)

or dobutamine echocardiography (**level of evidence: B**) is recommended as the initial test for risk stratification.

Recommendation 6: For patients with left bundle-branch block or electronically paced ventricular rhythm, dipyridamole or adenosine myocardial perfusion imaging is recommended regardless of ability to exercise (**level of evidence: B**).

Recommendation 7: For patients with left bundle-branch block or electronically paced ventricular rhythm, exercise or dobutamine echocardiography (**level of evidence: C**) and exercise myocardial perfusion imaging (**level of evidence: C**) are not recommended.

Risk Stratification in Asymptomatic Patients

Note: The American College of Cardiology/American Heart Association (ACC/AHA) recommends against "screening" asymptomatic outpatients for coronary disease. However, the American College of Physicians (ACP) recognizes the clinical reality that primary care physicians and subspecialists are being consulted by asymptomatic patients who may have been inappropriately screened and present with "abnormal" results on ambulatory ECG monitoring, electron-beam computed tomography, or other tests. Most of the recommendations in this section are based on level C evidence, which denotes expert opinion from the ACC/AHA guideline. As a matter of policy, the ACP seldom makes clinical policy recommendations on the basis of expert opinion. However, this clinical situation has become a particularly important problem for ACP membership. Therefore, in the absence of any high-grade evidence (level A or B), the ACP has chosen to endorse the following recommendations from the ACC/AHA document, which in this case were developed by using expert opinion.

Exercise ECG

Asymptomatic patients who are able to exercise can usually be evaluated with exercise ECG. In this case, the recommendations for exercise stress testing for risk stratification in asymptomatic patients would be the same as for symptomatic patients and would depend on patients' ability to exercise and the presence of abnormalities on resting ECG (see Recommendations 2 and 3 above).

Stress Imaging Studies (Radionuclide Angiography and Echocardiography)

The recommendations for the use of stress imaging (exercise or pharmacologic) in asymptomatic patients with abnormalities on ambulatory ECG monitoring or electron-beam computed tomography are the same as for symptomatic patients. They depend on whether the patient is able to exercise or whether abnormalities on resting ECG are present. In this case, the ACP recommends, on the basis of the opinion of the ACC/AHA, several options for further workup of asymptomatic patients.

Recommended options for cardiac stress imaging after exercise ECG for risk stratification in asymptomatic patients are as follows. Exercise myocardial perfusion imaging or exercise echocardiography may be performed in asymptomatic patients with an intermediate-risk or high-risk Duke treadmill score

on exercise ECG (**level of evidence: C**). Adenosine or dipyridamole myocardial perfusion imaging or dobutamine echocardiography may be performed in asymptomatic patients with a previously inadequate exercise ECG (**level of evidence: C**). Asymptomatic patients with a low-risk Duke treadmill score on exercise ECG should not have exercise myocardial perfusion imaging, exercise echocardiography, adenosine or dipyridamole myocardial perfusion imaging, or dobutamine echocardiography (**level of evidence: C**).

Definitions

Levels of Evidence

Level A recommendation is based on evidence from multiple randomized clinical trials with large numbers of patients.

Level B recommendation is based on evidence from a limited number of randomized trials with small numbers of patients, careful analyses of nonrandomized studies, or observational registries.

Level C recommendation is based on expert consensus.

CLINICAL ALGORITHM(S)

Two updated clinical algorithms are provided in the original American College of Physicians guideline document for the evaluation of suspected coronary artery disease (CAD) and for exercise electrocardiography (EEG) and angiography.

EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The type of evidence supporting the recommendations is identified and graded in the "Major Recommendations" field.

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

Estimating the probability of significant coronary artery disease in patients with stable angina will guide all further decisions about additional testing and management.

POTENTIAL HARMS

Not stated

QUALIFYING STATEMENTS

QUALIFYING STATEMENTS

- The American College of Physicians (ACP) has traditionally developed evidence-based guidelines. The College bases guideline recommendations on the results of systematic reviews of high-quality evidence (multiple, well-designed randomized, controlled trials) and meta-analyses where appropriate. In the absence of good evidence from randomized trials, the ACP will not make recommendations but will underscore practices that are not supported by evidence.
- *Asymptomatic* refers to patients with known or suspected coronary disease based on history or evidence on electrocardiography (ECG) of previous myocardial infarction (MI), coronary angiography, or abnormal results on noninvasive tests. This in no way constitutes an endorsement of noninvasive testing in asymptomatic patients for the purposes of "screening" but rather acknowledges the clinical reality that patients often present after having such an evaluation.
- **Note:** Clinical practice guidelines are "guides" only and may not apply to all patients and all clinical situations. Thus, they are not intended to override clinicians' judgment. All American College of Physicians (ACP) clinical practice guidelines are considered automatically withdrawn or invalid, 5 years after publication or once an update has been issued.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

An implementation strategy was not provided.

IMPLEMENTATION TOOLS

Clinical Algorithm
Patient Resources

For information about [availability](#), see the "Availability of Companion Documents" and "Patient Resources" fields below.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Living with Illness

IOM DOMAIN

Effectiveness
Patient-centeredness

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

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ADAPTATION

The guideline summarizes the recommendations of the 2002 American College of Cardiology/American Heart Association (ACC/AHA) guideline update for the management of patients with chronic stable angina: a report of the ACA/AHA Task Force on Practice Guidelines (Committee to Update the 1999 Guidelines for the Management of Patients with Chronic Stable Angina).

DATE RELEASED

2004 Jul 6

GUIDELINE DEVELOPER(S)

American College of Physicians - Medical Specialty Society

SOURCE(S) OF FUNDING

American College of Physicians (ACP)

GUIDELINE COMMITTEE

Clinical Efficacy Assessment Subcommittee of the American College of Physicians (ACP)

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

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FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Potential Financial Conflicts of Interest: *Employment:* P. Barry (Merck Institute of Aging and Health); *Consultancies:* R.J. Gibbons (CV Therapeutics, DOV Pharmaceuticals, King Pharm, Medicare, Boehringer Ingelheim, Hawaii Biotech, GlaxoSmithKline, TargeGen); *Stock ownership or options (other than mutual funds):* P. Barry (Merck & Co., Inc.); *Grants received:* P. Barry (Merck Company Foundation), R.J. Gibbons (Medtronic, King Pharm, Wyeth-Ayerst, Radiant Medical, Alsius Corp., TherOx, Innercool Therapies, Boston Scientific), S.V. Williams; *Grants pending:* R.J. Gibbons (Boehringer Ingelheim)

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GUIDELINE AVAILABILITY

Electronic copies: Available from the American College of Physicians (ACP) Web site:

- [HTML Format](#)
- [Portable Document Format \(PDF\)](#)

Print copies: Available from the American College of Physicians (ACP), 190 N. Independence Mall West, Philadelphia PA 19106-1572.

AVAILABILITY OF COMPANION DOCUMENTS

None available

PATIENT RESOURCES

The following is available:

- Summaries for patients. Diagnosis and Evaluation of Patients with Chronic Stable Angina: Recommendations from the American College of Physicians.

Electronic copies: Available from the American College of Physicians (ACP) Web site:

- [HTML Format](#)
- [Portable Document Format \(PDF\)](#)

Print copies: Available from the American College of Physicians (ACP), 190 N. Independence Mall West, Philadelphia PA 19106-1572.

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NGC STATUS

This NGC summary was completed by ECRI on August 16, 2004. The information was verified by the guideline developer on August 19, 2004.

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